UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/551,143	04/14/2000	Hideaki Yoshida	000489	1917

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EXAMINER
JERABEK, KELLY L

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/551,143	YOSHIDA ET AL.
	Examiner	Art Unit	
	Kelly L. Jerabek	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2005*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 21-34* is/are pending in the application.

    4a) Of the above claim(s) *28-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7, 21-27, and 33-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

7

Applicant's arguments filed 1/29/2005 have been fully considered but they are

not persuasive.

Response to Remarks:

Applicant's arguments regarding claims 1-7, 21-27, and 33-34 (Amendment

pages 10-11) state that since the Yosida reference discloses a 6-color filter consisting of

a 2 density R,G,B filter, the reference does not constitute a three-colored coding array

comprising a three-colored filter as disclosed in the amended claims. The Examiner

respectfully disagrees. Yosida discloses a 2-density RGB random color coding array

(fig. 10). Although the reference refers to the RGB random color array as a 6-color

array, the color filters of the array (LR,DR, LG, DG, LB, DB) are the same colors

(relative spectral permeabilities) as the R,G, and B filters of the prior Bayer type imaging

device (col. 12, lines 25-34). Therefore, the array disclosed by Yosida is a three-

colored (R,G,B) coding array and each color filter (R,G,B) has variable permeability

characteristics and thus Yosida reads on the amended claims.

Applicant's arguments regarding claims 1-4, 21-24, and 33 (Amendment pages 11-12) state that the array disclosed in figure 12A of Tsuruoka is a quasi-random array and not a randomized array. Applicant's arguments also state that Tsuruoka teaches away from using a random array. The Examiner respectfully disagrees. Tsuruoka discloses in figures 12A and 12B a three-color quasi-random array (col. 13, line 46 – col. 14, line 13). The Examiner is reading the quasi-random array as a randomized array because it is clear that a random process is used to generate the array. Also, although Tsuruoka states that the random arrangement of pixels may be troublesome (col. 13, lines 51-52), this does not mean that Tsuruoka teaches away from generating a randomized array. In fact, Tsuruoka states that it is desirable that the filter colors are arranged uniform in the rate of appearance and random in location because all the input signals are used to generate a reference image for restoration over a color edge mode (col. 13, lines 46-50).

Applicant's arguments regarding claims 1-7, 21-24, and 33-34 (Amendment pages 12-13) state that the obviousness-type double patenting rejection in view of the Yosida reference is no longer valid since the claims have been amended to include a 3-color array. The Examiner respectfully disagrees. Yosida discloses a 2-density RGB random color-coding array (fig. 10). Although the reference refers to the RGB random color array as a 6-color array, the color filters of the array (LR,DR, LG, DG, LB, DB) are the same colors (relative spectral permeabilities) as the R,G, and B filters of the prior Bayer type imaging device (col. 12, lines 25-34). Therefore, the array disclosed by

Yosida is a three-colored (R,G,B) coding array and each color filter (R,G,B) has variable

permeability characteristics and thus the obviousness-type double patenting rejection in

view of Yosida is maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 21-27, and 33-34 rejected under 35 U.S.C. 102(e) as being

anticipated by Yosida US 6,803,955.

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the

invention "by another," or by an appropriate showing under 37 CFR 1.131.

Re claim 1, Yosida discloses in figure 1 an imaging apparatus including a

random color filter array. The imaging apparatus (1) includes a single sensor color

image pickup device (105) consisting of a pixel group placed in an array of a plurality of

pixels for picking up a color image (col. 7, lines 8-53). Yosida also discloses a color

coding array that directly picks up a color image corresponding to the pixel group

arranged in a randomized array satisfying predetermined minimum color density

conditions (col. 12, lines 17-40; figs. 2 and 10). The array disclosed by Yosida is a 2-

density RGB random color-coding array (fig. 10). Although the reference refers to the

RGB random color array as a 6-color array, the color filters of the array (LR,DR, LG,

DG, LB, DB) are the same colors (relative spectral permeabilities) as the R,G, and B

filters of the prior Bayer type imaging device (col. 12, lines 25-34). Therefore, the array

disclosed by Yosida is a three-colored (R,G,B) coding array.

Re claim 2, Yosida states that the 3-colored coding array comprises a color filter

(col. 7, lines 34-41; fig. 2).

Re claim 3, Yosida discloses in figure 1 an imaging apparatus including a

random color filter array. The imaging apparatus (1) includes a single sensor color

image pickup device (105) consisting of a pixel group place in an array of a plurality of

pixels for picking up a color image (col. 7, lines 8-53). Yosida also discloses a color

coding array that directly picks up a color image corresponding to the pixel group

arranged in a randomized array satisfying predetermined minimum color density

conditions (col. 12, lines 17-40; figs. 2 and 10). The array disclosed by Yosida is a 2-

density RGB random color-coding array (fig. 10). Although the reference refers to the

RGB random color array as a 6-color array, the color filters of the array (LR,DR, LG,

DG, LB, DB) are the same colors (relative spectral permeabilities) as the R,G, and B

filters of the prior Bayer type imaging device (col. 12, lines 25-34). Therefore, the array

disclosed by Yosida is a three-colored (R,G,B) coding array. Additionally, Yosida

discloses a color separation means (127) for performing color separation processing of

output signals of the color image pickup device in accordance with the random color

coding array of the color image pickup device (col. 13, line 44 – col. 14, line 31).

Re claim 4, see claim 2.

Re claim 5, Yosida states that the imaging apparatus includes a storage means

for storing array data concerning the random color coding array for performing color

separation processing (col. 13, line 44 – col. 14, line 7).

Re claims 6 and 7, Yosida states that the storage means may include a mask

ROM or an EEPROM (col. 16, lines 47-65).

Re claim 21, see claim 1.

Re claim 22, see claim 2.

Re claim 23, see claim 3.

Re claim 24, see claim 4.

Re claim 25, see claim 5.

Re claim 26, see claim 6.

Re claim 27, see claim 7.

Re claim 33, Yosida discloses in figure 1 an imaging apparatus including a

random color filter array. The imaging apparatus (1) includes a single sensor color

image pickup device (105) including a pixel array having two-dimensionally arranged

pixels (col. 7, lines 8-53). Yosida also discloses a color separation filter for guiding the

incident optical image to each pixel of the array. The color separation filter has a

random color arrangement satisfying minimum color density conditions and it directly

picks up a color image (col. 12, lines 17-40; figs. 2 and 10). The array disclosed by

Yosida is a 2-density RGB random color-coding array (fig. 10). Although the reference

refers to the RGB random color array as a 6-color array, the color filters of the array

(LR,DR, LG, DG, LB, DB) are the same colors (relative spectral permeabilities) as the

R,G, and B filters of the prior Bayer type imaging device (col. 12, lines 25-34).

Therefore, the array disclosed by Yosida is a three-colored (R,G,B) coding array.

Re claim 34, Yosida discloses in figure 1 an imaging apparatus including a

random color filter array. The imaging apparatus (1) includes a single sensor color

image pickup device (105) including a pixel array having two-dimensionally arranged

pixels (col. 7, lines 8-53). Yosida also discloses a color separation filter for guiding the

incident optical image to each pixel of the array. The color separation filter has a

random color arrangement satisfying minimum color density conditions and it directly

picks up a color image (col. 12, lines 17-40; figs. 2 and 10). The imaging apparatus

also includes a preprocess circuit (126) for converting the output of the color image

pickup device into digital signals, a memory device (137) for storing color restoration

data corresponding to the color arrangement of the color separation filter, and a digital

processing circuit (127) for generating digital image signals restored to predetermined

color space, based on the digital signals outputted from the preprocess circuit and the

color restoration data stored at the memory device (col. 13, line 44 – col. 14, line 31).

Claims 1-4, 21-24, and 33 rejected under 35 U.S.C. 102(e) as being

anticipated by Tsuruoka et al. US 6,343,146.

Re claim 1, Tsuruoka discloses in figure 11 an image signal processor including

a random color filter array. The signal processor includes a single sensor color image

pickup device (501) consisting of a pixel group placed in an array of a plurality of pixels

for picking up a color image. Tsuruoka also discloses a color coding array that directly

picks up a color image corresponding to the pixel group arranged in a randomized array

satisfying predetermined minimum color density conditions (col. 13, line 45 – col. 14,

line 11; figs. 12A, 12B). The array disclosed by Tsuruoka is a three-color quasi-random

array (col. 13, line 46 – col. 14, line 13). The Examiner is reading the quasi-random

array as a randomized array because it is clear that a random process is used to

generate the array.

Re claim 2, the 3-colored coding array includes a color filter (figs. 12A, 12B).

Re claim 3, Tsuruoka discloses in figure 11 an image signal processor including

a random color filter array. The signal processor includes a single sensor color image

pickup device (501) consisting of a pixel group placed in an array of a plurality of pixels

for picking up a color image. Tsuruoka also discloses a color coding array that directly

picks up a color image corresponding to the pixel group arranged in a randomized array

satisfying predetermined minimum color density conditions (col. 13, line 45 – col. 14,

line 11; figs. 12A, 12B). Additionally, Tsuruoka discloses a color separation means for

performing color separation processing of output signals in accordance with the random

color coding array (col. 14, lines 14-30).

Re claim 4, the color coding array includes a color filter (figs. 12A, 12B).

Re claim 21, see claim 1.

Re claim 22, see claim 2.

Re claim 23, see claim 3.

Re claim 24, see claim 4.

Re claim 33, Tsuruoka discloses in figure 11 an image signal processor including

a random color filter array. The image signal processor includes a single sensor color

image pickup device (501) including a pixel array having two-dimensionally arranged

pixels. Yosida also discloses a color separation filter for guiding the incident optical

image to each pixel of the array. The color separation filter has a random color

arrangement satisfying minimum color density conditions and it directly picks up a color

image (col. 13, line 45 – col. 14, line 11; figs. 12A, 12B). The array disclosed by

Tsuruoka is a three-color quasi-random array (col. 13, line 46 – col. 14, line 13). The

Examiner is reading the quasi-random array as a randomized array because it is clear

that a random process is used to generate the array.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7, 21-27, and 33-34 (Application 09/551,143, hereinafter referred to as '143) rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 10 and 12-15 of U.S. Patent No. 6,803,955 (hereinafter referred to as '955). Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Relative to claims 1- 2, 21-22, and 33 of the current application '143, the claims 1-2, 21-22, and 33 of the current application '143 are a broader recitation of the same invention claimed in the claim 10 of '955. Therefore, claims 1-2, 21-22, and 33 are encompassed by the claim 10 of '955 (e.g. claim 10 of '955 discloses a (R,G,B) random color coding array meeting a requirement pertaining to color density; claims 1-2, 21-22, and 33 disclose that a three-colored random array satisfies predetermined minimum

color density conditions. **It is critical that patents issuing from this application be commonly owned to avoid potential licensees from owning license fees to two different parties.**

Relative to claims 3-4 and 23-24 of the current application '143, the claims 3-4 and 23-24 of the current application '143 are a broader recitation of the same invention claimed in the claim 12 of '955 (please see the examiner comments above).

Relative to claims 5, 25, and 34 of the current application '143, the claims 5, 25, and 34 of the current application '143 are a broader recitation of the same invention claimed in the claim 13 of '955 (please see the examiner comments above).

Relative to claims 6 and 26 of the current application '143, the claims 6 and 26 of the current application '143 are a broader recitation of the same invention claimed in the claim 14 of '955 (please see the examiner comments above).

Relative to claims 7 and 27 of the current application '143, the claims 7 and 27 of the current application '143 are a broader recitation of the same invention claimed in the claim 15 of '955 (please see the examiner comments above).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
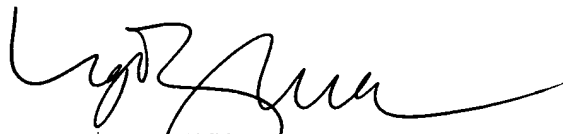
Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is **(571) 272-7312**. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached on **(571) 272-7320**. The fax phone number for submitting all Official communications is 703-872-9306. The fax phone number for submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at **(571) 273-7312**.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

KLJ

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PRIMARY EXAMINER